



**Response Action Contract
for Remedial, Enforcement Oversight, and Non-Time
Critical Removal Activities at Sites of Release or
Threatened Release of Hazardous Substances
in EPA Region VIII**

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**Technical Memorandum
Identifying Indoor Only Remediation Properties
For the 2002-03 Winter Construction Season**

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Section 1

Introduction

This memorandum summarizes the discussions during a Libby team conference call held on August 21, 2002 regarding the identification of properties that would require indoor only remediation for the 2002-03 winter construction season. During that call, it was decided to identify approximately 100 properties containing indoor vermiculite contamination. This information will be used to develop a list of properties that require only indoor remediation and therefore can be included on a list of candidate properties that could be remediated this coming winter.

EPA will use information collected from both the Phase I investigation and Contaminant Screening Study (CSS) to evaluate the criteria. Properties will be added to the indoor-only remediation list if they meet the following criteria:

- Visual confirmation of Libby vermiculite insulation and/or vermiculite present in building materials within any structure on the property
- Confirmation that no visible vermiculite was observed outdoors on the property
- No detectable Libby amphibole (LA), by all analytical methods, in all soil samples collected at that property

This evaluation will be conducted in a two-step process:

1. Evaluate properties that underwent the Phase I investigation and have supplemental CSS information.

If additional properties are required after the Phase 1 property evaluation then:

2. Evaluate properties that were only visited during the 2002 CSS investigation.

Section 2

Analytical Approach

Various analytical methods including polarized light microscopy (PLM), will be used to quantify the amount of LA in soil samples. PLM will be the initial screening method used, with additional analysis (IR and/or SEM) providing a lower detection limit for samples that require additional analysis (see below). The analytical approach for screening indoor only remediation properties was developed considering the following:

- PLM is a cost effective method of screening soil samples that contain elevated levels of LA. In addition, soil samples from several hundred Libby properties have already been screened using PLM. Continuing to use PLM will provide results with the same level of confidence and limit the number of samples undergoing more rigorous and costly analysis by other selected analytical methods.
- A positive PLM result will indicate that some level of LA is present even if it is not exactly quantifiable (i.e., trace). Any property having at least one sample with either trace or quantifiable levels of LA will no longer be considered for the indoor-only remediation list.
- A non-detect (ND) PLM result will only indicate that LA is not detectable by PLM. It will not be an indicator that LA is not present. These samples will undergo additional analysis using IR and/or SEM to determine if they contain LA. This will occur only in the instance when all samples from a property are reported as ND by PLM.

The PLM screen will be evaluated early in the process. If it is found that the majority of the sample results are ND, thereby indicating that few properties are being screened out by PLM, a change to the analytical strategy will be made.

Currently both the IR and SEM methods are being evaluated for their ability to quantify LA. Both are considered potentially valuable methods for estimating the concentration of LA in soils and for identifying soils containing trace amounts (less than 1 percent) of LA, as documented in the technical memorandum Summary and Evaluation of Interim Soil Test Material Sample Analysis by SEM and IR (Syracuse Research Corporation 2002). However, because evaluations continue, it has not been determined at this time which of these methods will be used to confirm and better quantify PLM results reported as trace or non-detect.

Section 3

Step I - Phase I Investigation Properties

The initial step in identifying properties for the indoor-only remediation list will be to review data from properties that were investigated as part of the Phase I investigation.

Approximately 540 of the total 3,400 properties identified in the Libby study area underwent Phase I sampling and a portion of these already have soil PLM results. Subsequently, a review of these data can begin immediately. In addition, to insure that all Phase 1 properties meet the objectives of the CSS investigation a review of soil sample locations will occur. When it is determined that samples were not collected in areas currently investigated as part of the CSS, supplemental soil samples will be collected in those areas.

Phase I investigation properties have been divided into four categories. The following table presents these categories and provides the number of properties associated with each.

Phase I Investigation Properties

Property Category	Number of Properties	In-Door Only Remediation
<i>Soil samples collected</i>		
Detections above 1 percent	41	No
At least 1 trace detection	190	No
All sample results ND	135	Additional screening required
<i>No soil samples collected</i>	174	Additional screening required

It has been determined through PLM analysis that the first two categories of properties may have outdoor contamination, and therefore will not be considered for the list of properties that will be remediated this winter. The latter two categories will require additional screening. The additional screening approach for these two categories is as follows:

All Soil Sample Results are Non-Detect

CSS Investigation

A supplemental CSS investigation will be conducted at every Phase 1 property where all soil sample results were reported as non-detect. The investigation will include an indoor and outdoor visual inspection, collection of supplemental information on the information field form (IFF), and collection of supplemental soil samples in accordance with the CSS SAP. This "supplemental" information will be collected in order to complete the CSS investigation objectives for each of these properties. Because the intent is to identify properties for an indoor-only remediation list, the only supplemental soil samples that will be analyzed at this

time will be from properties where visual confirmation of indoor vermiculite insulation and/or building materials.

Soil Sample Analysis


The first step will be to analyze any supplemental soil samples using PLM. If all of the supplemental soil sample results are reported as ND, the supplemental soil samples, along with the archived Phase I soil samples, will be re-analyzed using the to be determined selected analytical method(s). If all soil samples are reported as ND by all methods, the property will be added to the indoor-only remediation list.

No Soil Samples Collected

CSS Investigation

A supplemental CSS investigation will be conducted at these properties. The investigation will include an indoor and outdoor visual inspection, collection of supplemental information on the information field form (IFF), and collection of soil samples in accordance with the CSS SAP. Soil samples will be analyzed at this time only from properties where there has been visual confirmation of indoor vermiculite insulation and/or building materials.

Soil Sample Analysis

All newly collected soil samples will first be screened using PLM. If all of the results are reported as ND, the supplemental soil samples,  be re-analyzed using the to be determined selected analytical method(s). If all soil samples are reported as ND by all methods, the property will be added to the indoor-only remediation list.

Section 4

Step II - CSS Properties

If the step 1 approach does not provide a sufficient number of properties for the indoor-only remediation list, the second step will be to screen CSS properties that were not part of the Phase I investigation. The approach will include:

- Identifying properties that have indoor vermiculite insulation and/or building materials and no visible outdoor contamination as determined during the reconnaissance phase of the CSS investigation
- Analyze soil samples from these properties using PLM analysis
- Re-analyzing soil samples, using the to be determined selected analytical method(s), from a single property where all samples are reported ND by PLM
- Adding a property to the indoor-only remediation list if all soil samples are reported as ND by all analytical methods